

I. Amendments

A. In the Claims

This listing of claims will replace all prior versions and listings of claims in the application. Please amend claims 1-3, 9, 11, 16, 17 and 18 as follows:

Listing of the Claims

1. (currently amended) A color component color sensing circuit, comprising:
a color sensor circuit comprising a first photodetector configured to provide a light photocurrent from a color component to receive incident light falling thereon, of a light input and to provide, in response to the incident light falling thereon, a first light photocurrent therefrom as a first output voltage, said color sensor circuit being configured to provide a the first output voltage corresponding to an intensity of one of a Red Green and Blue said-color component of the incident light as such intensity occurs occurring under current operating temperatures conditions;
a dark color sensor circuit comprising a second photodetector configured to detect and provide a dark second photocurrent proportional to said current operating temperatures conditions and output a second output voltage corresponding to an offset voltage generated by said dark second photocurrent under said current operating temperatures conditions; and
a differential amplifier circuit operably coupled to said color sensor circuit and to said dark color sensor circuit, said differential amplifier being configured to receive said first and second output voltages, remove, using said second output voltage voltage, said dark color offset voltage from said first output voltage, and

thereby provide a dark color offset voltage and current operating temperature condition compensated output signal to a differential output thereof representative of said intensity of said color component.

2. (currently amended) The color sensing circuit of claim 1, wherein said color sensor circuit further comprises:

a transimpedance amplifier including an output configured to provide said first output voltage, a negative input, and a positive input;

a feedback resistor with one end coupled to said output and another end coupled to said negative input; and

a compensation capacitor coupled in parallel with said feedback resistor to said output and said negative input; and

wherein the first a-photodetector is configured to provide detect said first light photocurrent corresponding to ef-said color component, and further comprises comprising-a first photodetector input coupled to ground and to said positive input, and a first photodetector output coupled to said negative input.

3. (currently amended) The color sensing circuit of claim 1, wherein said dark color sensor circuit further comprises:

a transimpedance amplifier including an output configured to provide said second output voltage, a negative input, and a positive input;

a feedback resistor with one end coupled to said output and another end coupled to said negative input; and

a compensation capacitor coupled in parallel with said feedback resistor to said output and said negative input; and

wherein the second a-photodetector is configured to provide detect said dark second photocurrent corresponding to said dark current, and further comprises comprising-a second photodetector input coupled to ground and to

said positive input, and a second photodetector output coupled to said negative input.

4. (previously presented) The color sensing circuit of claim 1, wherein said differential amplifier circuit further comprises:

a difference amplifier configured to provide said compensated output signal to said differential output and further comprising a positive input and a negative input;

a feedback resistor having a resistor value with one end coupled to said negative input and another end coupled to said differential output;

a first resistor having said resistor value coupled in series with a color sensor output configured to provide said first output voltage and said negative input;

a second resistor having said resistor value coupled in series with a dark sensor output of said dark sensor circuit configured to provide said second output voltage and said positive voltage; and

a third resistor having said resistor value coupled in series to said positive input and to ground.

5. (previously presented) The color sensing circuit of claim 4, wherein said resistor value approximates a resistance of the feedback resistor in said color sensor circuit.

6. (previously presented) The color sensing circuit of claim 1, wherein said color component comprises red.

7. (previously presented) The color sensing circuit of claim 1, wherein said color component comprises green.

8. (previously presented) The color sensing circuit of claim 1, wherein said color component comprises blue.

9. (currently amended) A color sensing circuit configured to sense a plurality of color components of light incident thereon, comprising:

a plurality of Red, Green and Blue color sensor circuits, each color sensor circuit comprising a first photodetector and being configured to receive incident light falling thereon, and to provide, in response to the incident light falling thereon, a first light photocurrent therefrom as a first output voltage, provide a light photocurrent from a color component of light input corresponding thereto, and to output a the first output voltage corresponding to one of Red, Green and Blue an intensity of said color component of the incident light as such intensity occurs corresponding thereto that occurs under current operating temperaturesconditions;

a dark color sensor circuit comprising a second photodetector configured to provide a dark second photocurrent proportional to said current current operating temperatures conditions and output a second voltage corresponding to an offset voltage generated by said dark second photocurrent under said current operating conditions, and

at least one differential amplifier circuit operably coupled to said plurality of color sensor circuits and to said dark color sensor circuit and being configured to receive said first and second output voltages, remove, using said second output voltage, said dark color offset voltage from each of said first output voltages, and provide dark color offset voltage and current operating condition temperature compensated output signals corresponding to each of said color components to at least one differential output thereof, each of said output signals representing said intensity of said color component corresponding thereto.

10. (previously presented) The color sensing circuit of claim 9, wherein said at least one differential amplifier circuit further comprises:

a positive input and a negative input;

a feedback resistor having a resistor value with one end coupled to said negative input and another end coupled to said positive input, wherein said resistor value approximates a resistance of the feedback resistor included in at least one of said color sensor circuits;

a first resistor having said resistor value coupled in series with said negative input and at least one output of said color sensor circuits;

a second resistor having said resistor value coupled in series with said positive voltage and with a dark sensor circuit output; and

a third resistor coupled in series to said positive input and to ground.

11. (currently amended) The color sensing circuit of claim 9, wherein each of said plurality of color sensor circuits further comprises:

a transimpedance amplifier including an output configured to provide said first output voltage, a negative input, and a positive input;

a feedback resistor with one end coupled to said output and another end coupled to said negative input; and

a compensation capacitor coupled in parallel with said feedback resistor to said output and said negative input; and

wherein the first a-photodetector is configured to provide detect said first photocurrent corresponding to ef-said color component, and further comprises comprising a first photodetector input coupled to ground and to said positive input, and a first photodetector output coupled to said negative input.

12. (currently amended) The color sensing circuit of claim 9, wherein said dark color sensor circuit further comprises:

a transimpedance amplifier including an output configured to provide said second output voltage, a negative input, and a positive input;

a feedback resistor with one end coupled to said output and another end coupled to said negative input; and

a compensation capacitor coupled in parallel with said feedback resistor to said output and said negative input; and

wherein the second a-photodetector is configured to provide detect said dark second photocurrent corresponding to said dark current, and further comprises comprising a second photodetector input coupled to ground and to said positive input, and a second photodetector output coupled to said negative input.

13. (previously presented) The color sensing circuit of claim 9, wherein said color component comprises red.

14. (previously presented) The color sensing circuit of claim 9, wherein said color component comprises green.

15. (previously presented) The color sensing circuit of claim 9, wherein said color component comprises blue.

16. (currently amended) A method of compensating for dark current fluctuations proportional to current operating temperature variations in a color component color sensing circuit for sensing color, comprising:

measuring, under current operating conditions temperatures, a first voltage associated with a first intensity of a first color component of a first light input incident on a first light photodetector;

measuring, under said current operating conditions temperatures, an offset voltage associated with a dark photocurrent provided by a dark second photodetector; and

subtracting said offset voltage from said first voltage thereby to provide a dark color offset voltage and current operating condition temperature compensated first-first final output signal representative of said first intensity of said first color component.

17. (currently amended) The method of claim 16, further comprising:

matching a resistor value for resistors in a differential amplifier circuit, to a resistance of a feedback resistor in a color-sensor circuit configured to measure said first voltage, wherein said differential amplifier circuit is configured to receive said first voltage and said offset voltage and outputs therefrom final output signal voltage.

18. (currently amended) The method of claim 16, further comprising:

measuring, under said current operating temperaturesconditions, a second voltage associated with a second intensity of a second color component of a second light input incident on a third photodetector; and

subtracting said offset voltage from said first voltage and said second voltage thereby to provide dark color offset voltage and current operating temperature condition-compensated first-and-second final output signals-signal

representative of each of said first and the second intensity intensities of said first and second color component components, respectively.

19. (previously presented) The method of claim 16, wherein said first color component comprises red.

20. (previously presented) The method of claim 16, wherein said first color component comprises green.

21. (previously presented) The method of claim 16, wherein said first color component comprises blue.